

REMARKS

New claim 65 is added. Support for the new claim is provided by the originally-filed application at, for example, pages 5-6.

Claims 56-57, 59-60, and 62-63 are rejected under 35 U.S.C. §112, first paragraph, as failing to comply with the written description requirement.

Regarding the §112, first paragraph rejection, the Examiner states the original disclosure does not support the following language: changing the first energy state of the nitrogen atoms (or ions or species) to a second energy state that is different from the first energy state. Respectfully, the Examiner is mistaken. Regarding a proper written description, the Examiner is reminded that MPEP §2163 III. A. (8th ed., rev. no. 3, vol. 1) provides:

In rejecting a claim, the examiner must set forth express findings of fact regarding the above analysis which support the lack of written description conclusion. These findings should:

- (A) Identify the claim limitation at issue; and
- (B) Establish a *prima facie* case by providing reasons why a person skilled in the art at the time the application was filed would not have recognized that the inventor was in possession of the invention as claimed in view of the disclosure of the application as filed. A general allegation of "unpredictability in the art" is not a sufficient reason to support a rejection for lack of adequate written description.

The Examiner merely states no written support is provided for the limitation with absolutely no "express finding of fact" as required. As presented, the Examiner's rejection fails the clear mandate of the MPEP, and therefore, the §112 rejection is improper and should be withdrawn.

Moreover, Applicant directs the Examiner's attention to page 8, Ins. 5-11 of the originally-filed application which states:

Such activated nitrogen species are formed within plasma chamber 202 by, for example, exposing N₂ and/or other nitrogen-containing materials .., with the term "activated" **indicating that the nitrogen species is different than**

the form of nitrogen fed to the plasma. An activated nitrogen species can comprise, for example, a nitrogen ion or a nitrogen atom in **an energy state higher than its ground state.**

(emphasis added). Since “activated” is defined in the context of being a different energy state than a ground state for an exemplary nitrogen species (such as a nitrogen atom or ion), one exemplary difference of the nitrogen species when fed to the plasma versus its activated state can be stated to be differing energy states. That is, the exemplary nitrogen species will have one energy state when fed to a plasma chamber before the plasma processing and have a different energy state after the plasma processing. Accordingly, one skilled in the art would recognize that the inventor was in possession of the invention as claimed to, “changing the first energy state of the nitrogen atoms (or ions or species) to a second energy state that is different from the first energy state,” in view of the disclosure of the application as filed. Accordingly, the written description requirement is met, and therefore, the §112 rejection is improper and should be withdrawn.

Claims 36-41, 43-45, and 49-55 are rejected as being anticipated by *Holloway* (U.S. Patent No. 6,040,249). Claims 36-41, and 49-55 are rejected as being anticipated by *Hattangady, et al.* (U.S. Patent No. 6,399,445 B1). Claims 56-57, 59-60, and 62-63 are rejected as being unpatentable over *Holloway* in view of *Noble, et al.* (U.S. Patent No. 6,450,116 B1). Claims 58, 61, and 64 are rejected as being unpatentable over *Holloway* in view of *Koyama, et al.* (U.S. Patent No. 5,981, 366).

Independent claim 36 is amended to recite forming a first layer comprising conductively doped silicon and a second layer comprising conductively doped silicon over the first layer, the second layer comprising a second conductivity type that is different from the first conductivity type. The amendment language is supported by the originally-filed application at, for example, pages 5-12 and Figs. 1-5.

Regarding the anticipation rejection based on Holloway, Holloway teaches converting an exposed surface of a gate oxide to an oxynitride and then teaches a gate electrode is deposited (col. 2, ln. 50 to col. 3, ln. 15). Holloway fails to teach a second conductive layer. Accordingly, Holloway fails to teach or suggest forming a second layer comprising conductively doped silicon over a first layer as positively recited by claim 36. Accordingly, claim 36 is allowable over Holloway.

Regarding the anticipation rejection based on Hattangady, Hattangady teaches impinging nitrogen atoms into a silicon dioxide 3 and forming a polysilicon gate electrode 7 over the silicon dioxide 3 (Fig. 1; col. 3, lns. 22-40). Hattangady teaches an alternative structure for electrode 7 is a metal gate (col. 3, lns. 38-40). However, Hattangady does not teach a conductive layer over another conductive layer. Accordingly, it is inconceivable that Hattangady teaches or suggests forming a second layer comprising conductively doped silicon over a first layer as positively recited by claim 36. Claim 36 is allowable over Hattangady.

No other rejections are presented against claim 36. Since Holloway and Hattangady, singularly, fail to teach or suggest the positively recited limitation of claim 36, it is inconceivable that any combination of the references teaches or suggests the limitation. Claim 36 is allowable.

Claims 37-41 and 56-58 depend from independent claim 36, and therefore, are allowable for the reasons discussed above with respect to the independent claim.

Independent claim 43 is rejected as being anticipated by Holloway. Claim 43 is amended to recite forming conductively doped amorphous silicon physically against the upper portion of the silicon-dioxide-containing layer. The amendment language is supported by the originally-filed application at, for example, page 10. In the *Background*

section of Holloway, the reference teaches conventional gate structures for MOSFET devices include n-type and p-type polysilicon (col. 1, Ins. 15-25). Holloway fails to teach or suggest amorphous silicon for any structure disclosed. Accordingly, Holloway fails to teach or suggest forming conductively doped amorphous silicon physically against the upper portion of the silicon-dioxide-containing layer. Claim 43 is allowable.

Claims 44-45 and 59-61 depend from independent claim 43, and therefore, are allowable for the reasons discussed above with respect to the independent claim.

Independent claim 49 is amended to providing a semiconductor substrate comprising a first region and a second region that is different from the first region and **oxidizing** the conductively doped silicon and the second region of the semiconductor substrate. The amendment language is supported by the originally-filed application at, for example, page 11 and Fig. 4. Regarding the anticipation rejection based on Holloway, Holloway fails to teach or suggest *oxidizing* a conductively doped silicon. For at least this reason, claim 49 is allowable over Holloway. Moreover, claim 49 recites forming conductively doped silicon physically against the upper surface of the silicon-dioxide-containing layer and leaving the second region of the semiconductor exposed. Holloway fails to teach processing relative different regions of a substrate. Accordingly, it is inconceivable that Holloway teaches or suggests this positively recited limitation of claim 49. For this additional reason, claim 49 is allowable over Holloway.

Regarding the anticipation rejection based on Hattangady, Hattangady fails to teach or suggest *oxidizing* a conductively doped silicon. Consequently, claim 49 is allowable over Hattangady. No other rejections are presented against claim 49. Since Holloway and Hattangady, singularly, fail to teach or suggest the positively recited limitation of claim 49,


it is inconceivable that any combination of the references teaches or suggests the limitations of claim 49. Claim 49 is allowable.

Claims 50-55 and 62-65 depend from independent claim 49, and therefore, are allowable for the reasons discussed above with respect to the independent claim.

This application is now believed to be in immediate condition for allowance, and action to that end is respectfully requested. If the Examiner's next anticipated action is to be anything other than a Notice of Allowance, the undersigned respectfully requests a telephone interview prior to issuance of any such subsequent action.

Respectfully submitted,

Dated: 6-2-06

By: 
D. Brent Kenady
Reg. No. 40, 045